Complete Summary

GUIDELINE TITLE

Strategies to prevent catheter-associated urinary tract infections in acute care hospitals.

BIBLIOGRAPHIC SOURCE(S)

Lo E, Nicolle L, Classen D, Arias KM, Podgorny K, Anderson DJ, Burstin H, Calfee DP, Coffin SE, Dubberke ER, Fraser V, Gerding DN, Griffin FA, Gross P, Kaye KS, Klompas M, Marschall J, Mermel LA, Pegues DA, Perl TM, Saint S, Salgado CD, Weinstein RA, Wise R, Yokoe DS. Strategies to prevent catheter-associated urinary tract infections in acute care hospitals. Infect Control Hosp Epidemiol 2008 Oct;29 Suppl 1:S41-50. PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Catheter-associated urinary tract infection (CAUTI)

GUIDELINE CATEGORY

Prevention
Risk Assessment

CLINICAL SPECIALTY

Critical Care
Infectious Diseases
Internal Medicine
Nursing
Preventive Medicine
Urology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Hospitals
Nurses
Physician Assistants
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To highlight practical recommendations in a concise format designed to assist acute care hospitals in implementing and prioritizing their catheter-associated urinary tract infection (CAUTI) prevention efforts

TARGET POPULATION

Patients in acute care hospitals with indwelling urethral catheters

INTERVENTIONS AND PRACTICES CONSIDERED

1. Basic practices for prevention and monitoring of catheter-associated urinary tract infection (CAUTI) including:
    - Appropriate infrastructure for prevention of CAUTI
    - Surveillance of CAUTI
    - Education and training of healthcare personnel
    - Appropriate technique for catheter insertion
    - Assignment of accountability
2. Special approaches for prevention of CAUTI in hospitals with unacceptably high CAUTI rates including:
    - Risk assessment
    - Implementing organization-wide program to identify and remove catheters that are no longer necessary
    - Protocol for management of postoperative urinary retention
    - Establishing a system for analyzing and reporting data on catheter use and adverse events from catheter use

The following approaches should not be considered a routine part of CAUTI prevention:

- Routine use of silver-coated or other antibacterial catheters
- Screening for asymptomatic bacteriuria in catheterized patients
- Treatment of asymptomatic bacteriuria in catheterized patients except before invasive urologic procedures
- Catheter irrigation

- Routine use of systemic antimicrobials as prophylaxis
- Routine change of catheters

MAJOR OUTCOMES CONSIDERED

- Rates of symptomatic catheter-associated urinary tract infection (CAUTI), stratified by risk factors (age, sex, ward, indication, and catheter-days)
- Rates of bacteremia attributable to CAUTI
- Incidence of sepsis
- Catheter-associated morbidity: nonbacterial urethral inflammation, urethral strictures, mechanical trauma

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

For this compendium, the Society for Healthcare Epidemiology of America/Infectious Diseases Society of America (SHEA/IDSA) reviewed previously published guidelines and recommendations relevant to each section and performed computerized literature searches using PubMed. Searches of the English-language literature focused on human studies published after existing guidelines through 2007, using the subject headings listed in Table 2 of the Compendium document (see "Availability of Companion Documents" field).

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence*

I. Evidence from $\geq$1 properly randomized, controlled trial
II. Evidence from $\geq$1 well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from >1 center), from multiple time-series studies, or from dramatic results of uncontrolled experiments
III. Evidence from opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from the Canadian Task Force on the Periodic Health Examination.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

In evaluating the evidence regarding the prevention and monitoring of healthcare-associated infections (HAIs), the HAI Allied Task Force followed a process used in the development of other Infectious Diseases Society of America (IDSA) guidelines, including a systematic weighting of the quality of the evidence and the grade of recommendation (see the "Rating Scheme for the Strength of the Evidence" and "Rating Scheme for the Strength of the Recommendations" fields).

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA) Standards and Practice Guidelines Committee convened experts in the prevention and monitoring of healthcare-associated infections (HAIs).

The HAI Allied Task Force met on 17 occasions via teleconference to complete the compendium. The purpose of the teleconferences was to discuss the questions to be addressed, make writing assignments, and discuss recommendations. All members of the HAI Allied Task Force participated in the preparation and review of the draft documents. The compendium was then submitted to a subgroup of the HAI Allied Task Force with implementation expertise that, through a series of additional teleconferences and communications, performed extensive editing and reformatting to create implementation-focused text.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendation*

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation

*Adapted from the Canadian Task Force on the Periodic Health Examination.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Review and Approval Process

A critical stage in the development process is peer review. Peer reviewers are relied on for expert, critical, and unbiased scientific appraisals of the documents. The Society for Healthcare Epidemiology of America/Infectious Diseases Society of America (SHEA/IDSA) employed a process used for all SHEA/IDSA guidelines that includes a multilevel review and approval. Comments were obtained from several outside reviewers who complied with the SHEA/IDSA policy on conflict of interest disclosure. In addition, 8 stakeholder organizations provided comments on the document. Finally, the guideline was reviewed and approved by the IDSA Standards and Practice Guidelines Committee and the Board of Directors of the SHEA and the IDSA prior to dissemination.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendations for Implementing Prevention and Monitoring Strategies

Recommendations for preventing and monitoring catheter-associated urinary tract infection (CAUTI) are summarized below. They are designed to assist acute care hospitals in prioritizing and implementing their CAUTI prevention efforts.

Each recommendation includes a ranking for the strength and the quality of evidence supporting it. Definitions of the levels of evidence (I-III) and grades of recommendation (A-E) are provided at the end of the "Major Recommendations" field.

Basic Practices for Prevention and Monitoring of CAUTI: Recommended for All Acute Care Hospitals

Appropriate Infrastructure for Preventing CAUTI

1. Provide and implement written guidelines for catheter use, insertion, and maintenance (**A-II**).
    - Develop and implement facility criteria for acceptable indications for the use of indwelling urinary catheters.
    - Indications for the use of indwelling urethral catheters are limited and include the following: (Gokula, Hickner, & Smith, 2004; Marklew, 2004)
        - Perioperative use for selected surgical procedures
        - Urine output monitoring in critically ill patients
        - Management of acute urinary retention and urinary obstruction
        - Assistance in pressure ulcer healing for incontinent residents
        - As an exception, at patient request to improve comfort

2. Ensure that only trained, dedicated personnel insert urinary catheters (**B-III**).
3. Ensure that supplies necessary for aseptic-technique catheter insertion are available (**A-III**).
4. Implement a system for documenting the following information in the patient record: indications for catheter insertion, date and time of catheter insertion, individual who inserted catheter, and date and time of catheter removal (**A-III**).
    - Include documentation in nursing flow sheet, nursing notes, or physician orders.
        - Documentation should be accessible in the patient record and recorded in a standard format for data collection and quality improvement purposes.
    - Electronic documentation that is searchable is preferred, if available.

5. Ensure that there are sufficient trained personnel and technology resources to support surveillance of catheter use and outcomes (**A-III**).

Surveillance of CAUTI

1. Identify the patient groups or units in which to conduct surveillance, on the basis of risk assessment, considering the frequency of catheter use and the potential risk factors (e.g., types of surgery, obstetrics, and critical care) (**B-III**).
2. Use standardized criteria to identify patients who have a CAUTI (numerator data) (**A-II**).
3. Collect information on catheter-days (denominator data) for all patients in the patient groups or units being monitored (**A-II**).
4. Calculate CAUTI rates for target populations (**A-II**).
5. Measure the use of indwelling urinary catheters (**B-II**), including the following:
    - The percentage of patients with an indwelling urinary catheter inserted during hospitalization
    - The percentage of catheter use with accepted indications
    - Duration of indwelling catheter use

6. Use surveillance methods for case finding that are appropriate for the institution and are documented to be valid (**A-III**).

Education and Training

1. Educate healthcare personnel involved in the insertion, care, and maintenance of urinary catheters about CAUTI prevention, including alternatives to indwelling catheters and procedures for catheter insertion, management, and removal (**A-III**).

Appropriate Technique for Catheter Insertion

1. Insert urinary catheters only when necessary for patient care and leave them in place only as long as indications persist (**A-II**).
2. Consider other methods for management, including condom catheters or in-and-out catheterization, when appropriate (**A-I**).

3. Practice hand hygiene (in accordance with Centers for Disease Control and Prevention or World Health Organization guidelines) immediately before insertion of the catheter and before and after any manipulation of the catheter site or apparatus (**A-III**).
4. Insert catheters by use of aseptic technique and sterile equipment (**A-III**).
5. Use gloves, a drape, and sponges; a sterile or antiseptic solution for cleaning the urethral meatus; and a single-use packet of sterile lubricant jelly for insertion (**A-III**).
6. Use as small a catheter as possible that is consistent with proper drainage, to minimize urethral trauma (**B-III**).

Appropriate Management of Indwelling Catheters

1. Properly secure indwelling catheters after insertion to prevent movement and urethral traction (**A-III**).
2. Maintain a sterile, continuously closed drainage system (**A-I**).
3. Do not disconnect the catheter and drainage tube unless the catheter must be irrigated (**A-I**).
4. Replace the collecting system by use of aseptic technique and after disinfecting the catheter-tubing junction when breaks in aseptic technique, disconnection, or leakage occur (**B-III**).
5. For examination of fresh urine, collect a small sample by aspirating urine from the sampling port with a sterile needle and syringe after cleansing the port with disinfectant (**A-III**).
    - Promptly transport urine specimens to the laboratory for culture.
6. Obtain larger volumes of urine for special analyses aseptically from the drainage bag (**A-III**).
7. Maintain unobstructed urine flow (**A-II**).
8. Empty the collecting bag regularly, using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container (**A-II**).
9. Keep the collecting bag below the level of the bladder at all times (**A-III**).
10. Cleaning the meatal area with antiseptic solutions is unnecessary; routine hygiene is appropriate (**A-I**).

Accountability

1. The hospital's chief executive officer and senior management are responsible for ensuring that the healthcare system supports an infection prevention and control program that effectively prevents CAUTIs and the transmission of epidemiologically significant pathogens.
2. Senior management is accountable for ensuring that an adequate number of trained personnel are assigned to the infection prevention and control program.
3. Senior management is accountable for ensuring that healthcare personnel, including licensed and nonlicensed personnel, are competent to perform their job responsibilities.
4. Direct healthcare providers (such as physicians, nurses, aides, and therapists) and ancillary personnel (such as housekeeping and equipment-processing personnel) are responsible for ensuring that appropriate infection prevention and control practices are used at all times (including hand hygiene, standard

and isolation precautions, cleaning and disinfection of equipment and the environment, aseptic technique when inserting and caring for urinary catheters, and daily assessment of whether an indwelling urinary catheter is medically indicated).

5. Hospital and unit leaders are responsible for holding their personnel accountable for their actions.
6. The person who manages the infection prevention and control program is responsible for ensuring that an active program to identify CAUTIs is implemented, that data on CAUTIs are analyzed and regularly provided to those who can use the information to improve the quality of care (e.g., unit staff, clinicians, and hospital administrators), and that evidence-based practices are incorporated into the program.
7. Personnel responsible for healthcare personnel and patient education are accountable for ensuring that appropriate training and educational programs to prevent CAUTI are developed and provided to personnel, patients, and families.
8. Personnel from the infection prevention and control program, the laboratory, and information technology departments are responsible for ensuring that systems are in place to support the surveillance program.

Special Approaches for the Prevention of CAUTI

Perform a CAUTI risk assessment. These special approaches are recommended for use in locations and/or populations within the hospital with unacceptably high CAUTI rates despite implementation of the basic CAUTI prevention strategies listed above.

1. Implement an organization-wide program to identify and remove catheters that are no longer necessary, using 1 or more methods documented to be effective (**A-II**).
    - Develop and implement institutional policy requiring continual, usually daily, review of the necessity of continued catheterization.
    - Electronic or other types of reminders (see the Appendix in the original guideline document) may be useful. Some examples include the following:
        - Automatic stop orders requiring renewal of the order for continuation of the indwelling catheter
        - Standardized reminders placed into patient charts (see the Appendix in the original guideline document) or the electronic patient record
    - Implement daily ward rounds by nursing and physician staff to review all patients with urinary catheters and to ascertain continuing necessity.

2. Develop a protocol for management of postoperative urinary retention, including nurse-directed use of intermittent catheterization and use of bladder scanners (**B-I**).
    - If bladder scanners are used, indications must be clearly stated, and nursing staff must be trained in their use.

3. Establish a system for analyzing and reporting data on catheter use and adverse events from catheter use (**B-III**).

- Define and monitor adverse outcomes in addition to CAUTI, including catheter obstruction, unintended removal, catheter trauma, or reinsertion within 24 hours after removal.
- For analysis, stratify measurements of catheter use and adverse outcomes by relevant risk factors (e.g., sex, age, ward, and duration). Review data in a timely fashion and report them to the appropriate stakeholders.

Approaches That Should Not Be Considered a Routine Part of CAUTI Prevention

1. Do not routinely use silver-coated or other antibacterial catheters (**A-I**).
2. Do not screen for asymptomatic bacteriuria in catheterized patients (**A-II**).
3. Do not treat asymptomatic bacteriuria in catheterized patients except before invasive urologic procedures (**A-I**).
4. Avoid catheter irrigation (**A-I**).
    - Do not perform continuous irrigation of the bladder with antimicrobials as a routine infection prevention measure.
    - If obstruction is anticipated, closed continuous irrigation may be used to prevent it.
    - To relieve obstruction due to clots, mucus, or other causes, an intermittent method of irrigation may be used.
5. Do not use systemic antimicrobials routinely as prophylaxis (**A-II**).
6. Do not change catheters routinely (**A-III**).

Unresolved Issues

- Use of antiseptic solution versus sterile saline for meatal cleaning before catheter insertion
- Use of antimicrobial-coated catheters for selected patients at high risk for infection

Definitions:

Quality of Evidence*

I. Evidence from $\geq$1 properly randomized, controlled trial
II. Evidence from $\geq$1 well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from >1 center), from multiple time-series studies, or from dramatic results of uncontrolled experiments
III. Evidence from opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

Strength of Recommendation*

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation

*Adapted from the Canadian Task Force on the Periodic Health Examination.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

The recommendations in this guideline are largely based on previously published healthcare-associated infection (HAI) prevention guidelines available from a number of organizations, including the Healthcare Infection Control Practices Advisory Committee and the Centers for Disease Control and Prevention, Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), and the Association for Professionals in Infection Control and Epidemiology, and relevant literature published after these guidelines.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of urinary catheters leading to effective prevention of catheter-associated urinary infection in acute care hospitals

POTENTIAL HARMS

Catheter use is associated with negative outcomes other than infection, including nonbacterial urethral inflammation, urethral strictures, and mechanical trauma.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Recommendations that might ordinarily be included in a guideline with a C-level strength of recommendation were excluded from the recommendations and are discussed in the "unresolved issues" sections (see original guideline document); this was done to help hospitals to focus their implementation efforts on the most strongly recommended prevention practices. Hospitals can prioritize their efforts by initially focusing on implementation of the prevention approaches listed as basic practices recommended for all acute care hospitals. If healthcare-associated infection (HAI) surveillance or other risk assessments suggest that there is

ongoing transmission despite implementation of basic practices, hospitals should then consider adopting some or all of the prevention approaches listed under the "special approaches" section of this document. These can be implemented within specific locations or patient populations or can be implemented hospital wide, depending on outcome data, risk assessment, and/ or local requirements. Most of the special approaches listed in this document are supported by studies based on the control of HAI outbreaks and require additional personnel and financial resources for implementation.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Chart Documentation/Checklists/Forms
Foreign Language Translations
Patient Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Lo E, Nicolle L, Classen D, Arias KM, Podgorny K, Anderson DJ, Burstin H, Calfee DP, Coffin SE, Dubberke ER, Fraser V, Gerding DN, Griffin FA, Gross P, Kaye KS, Klompas M, Marschall J, Mermel LA, Pegues DA, Perl TM, Saint S, Salgado CD, Weinstein RA, Wise R, Yokoe DS. Strategies to prevent catheter-associated urinary tract infections in acute care hospitals. Infect Control Hosp Epidemiol 2008 Oct;29 Suppl 1:S41-50. PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2008 Oct

GUIDELINE DEVELOPER(S)

Infectious Diseases Society of America - Medical Specialty Society
Society for Healthcare Epidemiology of America - Professional Association

SOURCE(S) OF FUNDING

Society for Healthcare Epidemiology of America (SHEA)/Infectious Diseases Society of America (IDSA)

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All members of the Healthcare-Associated Infections (HAI) Allied Task Force and the external peer reviewers complied with the Infectious Diseases Society of America (IDSA) policy on conflicts of interest, which requires disclosure of any financial or other interest within the past 2 years that might be construed as constituting an actual, potential, or apparent conflict. Members of the HAI Allied Task Force and the external reviewers were provided with the IDSA conflicts of interest disclosure statement and were asked to identify ties to companies developing products that might be affected by promulgation of the compendium. Information was requested regarding employment, consultancies, stock ownership, honoraria, research funding, expert testimony, and membership on company advisory committees. The task force made decisions on a case-by-case basis as to whether an individual's role should be limited as a result of a conflict.

D.S.Y. has received a research grant from Sage Products. L.A.M. has received research grants from and served as a consultant to 3M, Angiotech, and Cadence and is a consultant to Ash Access Technology. D.J.A. has received a research grant from Pfizer and has served on advisory councils for Schering-Plough and Pfizer. K.M.A. is the immediate past president of the Association for Professionals in Infection Control and Epidemiology and serves on its board of directors. H.B.'s participation does not represent official endorsement of the compendium by the National Quality Forum. D.P.C. is a member of the speakers' bureau for Enturia. S.E.C. has received a research grant from Merck. E.R.D. is a member of the speakers' bureaus for Elan, Enzon, Schering-Plough, Viropharma, Pfizer, and

Astellas and serves on the advisory boards of Schering-Plough, Genzyme, and Salix. V.F. is the past president of the Society for Healthcare Epidemiology of America, has been a consultant to Steris, Verimetrix, and Merck, and is a member of the speakers' bureaus for Cubist and Merck. P.G. has received a research grant from Becton, Dickinson and Company (BD); has been on the speakers' bureau for Ortho-McNeil; and served on the Zostervax advisory board of Merck. K.S.K has received research grants from Pfizer, Merck, and Cubist; is a member of the speakers' bureaus for Pfizer, Merck, Cubist, Schering-Plough, and Wyeth; and serves on the advisory board for Schering- Plough. J.M. has received a research grant from the Swiss National Science Foundation. T.M.P. is a past president of the Society for Healthcare Epidemiology of America; is on the advisory board or the speakers' bureau for Theradoc, 3M, Replydine, and Ortho-McNeil; and has received honoraria from VHA and the Institute for Healthcare Improvement. S.S. has received an honorarium from VHA. C.D.S. is a member of the speakers' bureau for Pfizer. R.A.W. has received research grants from Sage Products and the Centers for Disease Control and Prevention and has been a consultant on Tolevamer for Genzyme and a consultant to the Centers for Disease Control and Prevention. D.C. is co-chair of the National Quality Forum Patient Safety Taxonomy Committee and an employee of CSC, a healthcare technology consulting company, and has ownership in Theradoc, a medical software company. All other authors report no relevant conflicts of interest.

ENDORSER(S)

American Organization of Nurse Executives - Professional Association
Association for Respiratory Care - Professional Association
Infusion Nurses Society - Professional Association
Pediatric Infectious Diseases Society - Professional Association
Society for Hospital Medicine - Professional Association
Society of Critical Care Medicine - Professional Association
Surgical Infection Society - Professional Association

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Society for Healthcare Epidemiology of America (SHEA) Web site.

Print copies: Available from the Reprints Coordinator, University of Chicago Press, 1427 E. 60th St., Chicago, IL 60637 (reprints@press.uchicago.edu) or contact the journal office (iche@press.uchicago.edu).

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Improving patient safety through infection control: a new healthcare imperative. Infect Control Hosp Epidemiol 2008;29:S3–S11. Electronic copies:

Available from the Society for Healthcare Epidemiology of America (SHEA) Web site.

- A compendium of strategies to prevent healthcare-associated infections in acute care hospitals. Executive summary. Infect Control Hosp Epidemiol 2008;29:S12–S21. Electronic copies: Available from the Society for Healthcare Epidemiology of America (SHEA) Web site.

Print copies: Available from the Reprints Coordinator, University of Chicago Press, 1427 E. 60th St., Chicago, IL 60637 (reprints@press.uchicago.edu) or contact the journal office (iche@press.uchicago.edu).

Performance measures and a urinary catheter reminder form (in appendix) are available in the original guideline document.

PATIENT RESOURCES

The following is available:

- FAQs (frequently asked questions) about catheter-associated urinary tract infection. 2008. 1 p.

Electronic copies: Available in English and Spanish from the Society for Healthcare Epidemiology of America (SHEA) Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

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